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EXAMINER

JONES, HEATHER RAE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/770,128	Applicant(s) JUNG ET AL.	
	Examiner HEATHER R. JONES	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 47-54 is/are allowed.
- 6) ☒ Claim(s) 1-43 and 55-71 is/are rejected.
- 7) ☒ Claim(s) 44-46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2004 and 13 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed April 11, 2008 regarding claims 1-59, 62-67, 70, and 71 have been fully considered but they are not persuasive.

The Applicant argues that neither Cho et al., Cote et al., Lamkin et al., nor Kim et al. disclose or suggest that each of the ENAV units or at least one ENAV page has a size less than a predetermined size. The Examiner respectfully disagrees. Cho et al. discloses a computer readable information storage medium is encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/video data in an interactive mode comprising ENAV units and at least one ENAV page (Figs. 6 and 12; paragraphs [0030], [0031], and [0068]). Lamkin et al. also discloses a computer readable information storage medium is encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/video data in an interactive mode comprising ENAV units and at least one ENAV page (Figs. 5 and 6; paragraphs [0049], [0050], [0053], and [0128]), as well as an ENAV buffer and buffer manager (claims 1 and 9-13 of the Lamkin et al. publication). However, Cho et al. and Lamkin et al. both fail to disclose that the buffer will determine the size of the data to be buffered, thereby making the ENAV units or the at least one ENAV page having a size that is less than a predetermined size. Cole et al. is used to reference the fact that Cole et al. discloses the size of the buffer (regardless of the situation it is used in) will determine the frame size

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variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44). Therefore, when Cole et al. is combined with the Cho et al. and/or Lamkin et al. reference then the buffer being used in that apparatus will determine the size of the data to be buffered, thereby making the ENAV units or the at least one ENAV page have a size that is less than a predetermined size, and that predetermined size being the size of the buffer being used in order to properly process the data as well as avoiding a buffer underflow or overflow. Furthermore, the Kim et al. reference is being referred to only to disclose directories. Therefore, Cho et al., Cote et al., Lamkin et al., and Kim et al. meet the claimed limitations and the rejection is maintained.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5, 6, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. (U.S. Patent Application Publication 2002/0186485) in view of Cote et al. (U.S. Patent 7,170,938).

Regarding claim **1**, Cho et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/video (AV) data in an interactive mode, the medium comprising: the audio/video (AV) data (Fig. 1 – Data Zone (DZ)); and interactive data to be reproduced with the AV data by the recording and/or reproducing apparatus in the interactive mode (Fig. 1 - Script File Zone (SFZ)), wherein: the interactive data comprises a plurality of ENAV units (Fig. 6), and each of the ENAV units corresponds to a portion of the AV data (Figs. 6 and 12; paragraphs [0040] and [0068] – the script files can be interactive). However, Cho et al. fails to disclose that each ENAV unit has a size less than a predetermined size.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the frame size as taught by Cote et al. in the apparatus disclosed by Cho et al. in order to avoid underflow and/or overflow of the buffer.

Regarding claim **2**, Cho et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 1 including that the

information storage medium comprises an area in which the plurality of ENAV units are continuously recorded (Cho et al.: Figs. 1, 6, and 7).

Regarding claim **3**, Cho et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 1 including that the interactive data comprises link information specifying a relation between the AV data and the corresponding ENAV units, and the link information is described using a structure of the AV data (Cho et al.: Fig. 6; paragraph [0040]).

Regarding claim **5**, Cho et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 1 including that the interactive data comprises link information specifying a relation between the AV data and the corresponding ENAV units, and the link information is described using reproduction location information of the AV data (Cho et al.: Fig. 6; paragraph [0040] – addresses).

Regarding claim **6**, Cho et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 1 including that each of the ENAV units comprises at least one markup resource (Cho et al.: Fig. 12; paragraphs [0031] and [0068]).

Regarding claim **71**, Cho et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 1 including that the predetermined size corresponds to a size of ENAV unit buffers of the recording and/or reproducing apparatus (Cote et al.: col. 2, lines 37-44 - the size of the

buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow).

4. Claims 4 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. in view of Cote et al. as applied to claim 1 above, and further in view of Lamkin et al. (U.S. Patent Applicant Publication 2005/0278729).

Regarding claim 4, Cho et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 1 including that the interactive data comprises link information specifying a relation between the AV data and the corresponding ENAV units (Fig. 6; paragraph [0040]). However, Cho et al. fails to disclose that the link information is described using reproduction time information of the AV data.

Referring to the Lamkin et al. reference, Lamkin et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/video (AV) data in an interactive mode, the medium comprising: interactive data comprising link information specifying a relation between the AV data and the corresponding ENAV units, and the link information is described using reproduction time information of the AV data (Figs. 5 and 6; paragraphs [0047], [0053], [0060], and [0114] - time can trigger an event signaling to display the enhanced data with the AV data).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have linked the ENAV units to the AV data

using reproduction time information of the AV data as disclosed by Lamkin et al. with the linking information disclosed by Cho et al. in view of Cote et al. in order to provide another way to easily link the ENAV data and the AV data so that they are displayed at the same time, which will allow more systems to reproduce the data by providing more than one linking system, therefore making the information storage medium more versatile.

Regarding claim **7**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 1 and 4 including that each of the ENAV units comprises: at least one ENAV page including a markup resource, and the ENAV page includes synchronization information indicating a time at which to display the ENAV page (Cho et al: Fig. 12; paragraphs [0031] and [0068] – markup resource; Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0053], [0060], and [0114] - time can trigger an event signaling to display the enhanced data with the AV data).

Regarding claim **8**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 1, 4, and 7 including that the ENAV page comprises a markup document. (Cho et al: Fig. 12; paragraphs [0031] and [0068] – markup resource; Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], and [0053]).

Regarding claim **9**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 1, 4, 7,

and 8 including that the markup document comprises a startup file including the link information (Cho et al.: paragraph [0030]; Lamkin et al.: paragraph [0128]).

Regarding claim **10**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 1, 4, 7, and 8 including that the markup document comprises a schedule file including the link information (Cho et al.: Fig. 6; paragraph [0040]; Lamkin et al.: paragraph [0128]).

Regarding claim **11**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 1, 4, 7, and 8 including that corresponding synchronization information is recorded in each ENAV page including the markup resource (Cho et al.: Fig. 12; paragraphs [0031] and [0068]; Lamkin et al.: paragraph [0050]).

Regarding claim **12**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 1, 4, 7, 8, and 11 including that the AV data comprises DVD-Video data having corresponding presentation time stamps, and the link information and the synchronization information are described using the presentation time stamp of the corresponding DVD-Video data (Cho et al.: Fig. 12; paragraphs [0031] and [0068] – markup resource; Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0053], [0060], and [0114] - time can trigger an event signaling to display the enhanced data with the AV data).

Regarding claim **13**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 1, 4, 7, 8, and 11 including that the AV data is DVD-Video data having corresponding logical block locations, and the link information and the synchronization information are described using logical block location information of the corresponding DVD-Video data (Cho et al.: Fig. 6; paragraph [0040]; Lamkin et al.: paragraph [0060] - properties).

5. Claims 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. (U.S. Patent Application Publication 20020186485) in view of Cote et al. (U.S. Patent 7,170,938) in view of Lamkin et al. (U.S. Patent Applicant Publication 2005/0278729).

Regarding claim **14**, Cho et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/visual (AV) data in an interactive mode, the medium comprising: the audio/video (AV) data (Fig. 1; Data Zone (DZ)); and interactive data to be reproduced by the recording and/or reproducing apparatus with the AV data in the interactive mode (Fig. 1 – Script File Zone (SFZ)), wherein: the interactive data comprises a plurality of ENAV units (Fig. 6), and each ENAV unit includes a start page stored with a predetermined start file name recognized by the recording and/or reproducing apparatus to associate the ENAV unit with the corresponding AV data during the interactive mode (Figs. 6 and 7; paragraphs [0040] and [0041]). However, Cho

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et al. fails to disclose that each ENAV unit has a size less than a predetermined size as well as that each ENAV unit includes a start page stored with a predetermined start file name recognized by the recording and/or reproducing apparatus to control the buffering of the ENAV unit with the corresponding AV data during the interactive mode.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the frame size as taught by Cote et al. in the apparatus disclosed by Cho et al. in order to avoid underflow and/or overflow of the buffer. However, Cho et al. in view of Cote et al. still fail to disclose that each ENAV unit includes a start page stored with a predetermined start file name recognized by the recording and/or reproducing apparatus to control the buffering of the ENAV unit with the corresponding AV data during the interactive mode.

Referring to the Lamkin et al. reference, Lamkin et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/video (AV) data in an interactive mode, the medium comprising: each

ENAV unit includes a start page stored with a predetermined start file name recognized by the recording and/or reproducing apparatus to control the buffering of the ENAV unit with the corresponding AV data during the interactive mode (paragraphs [0049], [0050], and [0053]; claims 1, 2, 6, and 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have not only associated the interactive data with the AV data, but to have notified the buffer of the correlation between the interactive data and the AV data as disclosed by Lamkin et al. with the information storage medium disclosed by Cho et al. in view of Cote et al. in order to ensure that the interactive data and the AV data were displayed simultaneously.

Regarding claim **15**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claim 14 including that each of the ENAV units comprises: at least one ENAV page, and the start page is one of the ENAV pages (Cho et al.: Fig. 12; paragraphs [0030], [0031], and [0068]; Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0053], and [0128]).

Regarding claim **16**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claim 14 including that the interactive data comprises a markup document and markup resources linked to the markup document (Cho et al.: Fig. 12; paragraphs [0031]

and [0068] – markup resource; Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], and [0053]).

Regarding claim **17**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claim 14 including that the AV data comprises DVD-Video data (Cho et al.: Fig. 12; paragraphs [0031] and [0068] – markup resource; Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], and [0053]).

Regarding claim **18**, Cho et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/visual (AV) data in an interactive mode, the medium comprising: the audio/video (AV) data (Fig. 1; Data Zone (DZ)); and interactive data to be reproduced by the recording and/or reproducing apparatus with the AV data in the interactive mode (Fig. 1 – Script File Zone (SFZ)), wherein: the interactive data comprises a plurality of ENAV units (Fig. 6), and each ENAV unit includes a start page stored with a predetermined directory file name recognized by the recording and/or reproducing apparatus to associate the ENAV unit with the corresponding AV data during the interactive mode (Figs. 6 and 7; paragraphs [0040] and [0041]). However, Cho et al. fails to disclose that each ENAV unit has a size less than a predetermined size as well as that each ENAV unit includes a start page stored with a predetermined directory file name recognized by the recording and/or

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reproducing apparatus to control the buffering of the ENAV unit with the corresponding AV data during the interactive mode.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the frame size as taught by Cote et al. in the apparatus disclosed by Cho et al. in order to avoid underflow and/or overflow of the buffer. However, Cho et al. in view of Cote et al. still fail to disclose that each ENAV unit includes a start page stored with a predetermined start file name recognized by the recording and/or reproducing apparatus to control the buffering of the ENAV unit with the corresponding AV data during the interactive mode.

Referring to the Lamkin et al. reference, Lamkin et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/video (AV) data in an interactive mode, the medium comprising: each ENAV unit includes a start page stored with a predetermined directory file name recognized by the recording and/or reproducing apparatus to control the buffering

of the ENAV unit with the corresponding AV data during the interactive mode (paragraphs [0049], [0050], and [0053]; claims 1, 2, 6, and 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have not only associated the interactive data with the AV data, but to have notified the buffer of the correlation between the interactive data and the AV data as disclosed by Lamkin et al. with the information storage medium disclosed by Cho et al. in view of Cote et al. in order to ensure that the interactive data and the AV data were displayed simultaneously.

Regarding claim **19**, Cho et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/visual (AV) data in an interactive mode, the medium comprising: the audio/video (AV) data (Fig. 1; Data Zone (DZ)); and interactive data for use by the recording and/or reproducing apparatus for reproducing the AV data in the interactive mode (Fig. 1 – Script File Zone (SFZ)), wherein: the interactive data includes at least one ENAV page (Figs. 6 and 7; paragraphs [0040] and [0041]). However, Cho et al. fails to disclose that each ENAV page has a size less than a predetermined size as well as that at least one of the ENAV pages includes control command information for an ENAV buffer which the recording and/or reproducing apparatus uses to buffer the ENAV page.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the page size as taught by Cote et al. in the apparatus disclosed by Cho et al. in order to avoid underflow and/or overflow of the buffer. However, Cho et al. in view of Cote et al. still fail to disclose that at least one of the ENAV pages includes control command information for an ENAV buffer which the recording and/or reproducing apparatus uses to buffer the ENAV page.

Referring to the Lamkin et al. reference, Lamkin et al. discloses a computer readable information storage medium encoded with instructions used by a recording and/or reproducing apparatus to enable audiovisual display of audio/video (AV) data in an interactive mode, the medium comprising that at least one of the ENAV pages includes control command information for an ENAV buffer which the recording and/or reproducing apparatus uses to buffer the ENAV page (paragraphs [0049], [0050], [0053], and [0106]; claims 1, 2, 6, and 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have not only associated the interactive data with the AV data, but to have notified the buffer of the correlation between the

interactive data and the AV data as disclosed by Lamkin et al. with the information storage medium disclosed by Cho et al. in view of Cote et al. in order to ensure that the interactive data and the AV data were displayed simultaneously.

Regarding claim **20**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claim 19 including that the control command information commands existing data stored in the ENAV buffer to be discarded (Lamkin et al.: claim 12)

Regarding claim **21**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claim 19 including that the interactive data is divided into a plurality of ENAV units, and each of the ENAV units includes a corresponding one of the ENAV pages (Cho et al.: Figs. 6, 7, and 12; paragraphs [0031] and [0068]; Lamkin et al: paragraphs [0049], [0050], and [0053]).

Regarding claim **22**, Cho et al. in view of Cote et al. in view of Lamkin et al. discloses all the limitations as previously discussed with respect to claims 19 and 22, including that the control command information commands a buffered ENAV unit stored in the ENAV buffer to be discarded and another ENAV unit to be read into the ENAV buffer (Lamkin et al: claims 9-13 – buffer management).

6. Claims 23-43 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamkin et al. (U.S. Patent Applicant Publication 2005/0278729) in view of Cote et al. (U.S. Patent 7,170,938).

Regarding claim **23**, Lamkin et al. discloses an apparatus for recording and/or reproducing audio/video (AV) data in an interactive mode, comprising: an ENAV buffer which buffers interactive data for reproducing the AV data in the interactive mode, where the interactive data is divided into a plurality of ENAV units (Figs. 5 and 6; paragraphs [0049], [0050], [0053], and [0128]; claim 1); an ENAV buffer manager which controls the ENAV buffer so that the interactive data is read in and discarded in one or more units of the ENAV units (claims 1 and 9-13); and a reproducing unit that reproduces the AV data in the interactive mode using the interactive data from the ENAV buffer (Figs. 5 and 6). However, Lamkin et al. fails to disclose that each ENAV unit has a size less than a predetermined size.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the page size as taught by Cote et al. in the apparatus disclosed by Lamkin et al. in order to avoid underflow and/or overflow of the buffer.

Regarding claim **24**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 23, including that the

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size of each of the ENAV unit buffers is at or greater than the predetermined size of each of the ENAV units (Cote et al.: col. 2, lines 37-44). However, Lamkin et al. in view of Cote et al. fails to disclose that the ENAV buffer comprises a plurality of ENAV unit buffers. Official Notice is taken that it is well known to have a buffer that contains several buffer units inside it. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a buffer with several units in order to create a larger buffer to retain more data in order to keep up with simultaneously displaying interactive data.

Regarding claim **25**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 23 including that the ENAV buffer manager refers to the interactive data to detect link information between the AV data and the ENAV units and which is described using a structure of the AV data, and controls the ENAV buffer using the detected link information so that an ENAV unit is read in before a display of a portion of the AV data that corresponds to the ENAV unit (Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0060] -properties, [0106], and [0114]; claims 9-13).

Regarding claim **26**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 23 including the ENAV buffer manager: refers to the interactive data to detect link information between the AV data and the ENAV units and which is described using a reproduction time information of the AV data, and controls the ENAV buffer using the detected reproduction time information so that an ENAV unit is read in before a display of

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a portion of the AV data that corresponds to the ENAV unit (Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0060], [0106], and [0114] – time can trigger and event; claims 9-13).

Regarding claim **27**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 23 including that the ENAV buffer manager: refers to the interactive data to detect synchronization information recorded in a markup document for each ENAV page in a corresponding ENAV unit, and controls the ENAV buffer using the detected synchronization information so that an ENAV unit corresponding to the synchronization information is read into the ENAV buffer (Lamkin et al: Figs. 5 and 6; paragraphs [0049], [0050], [0060], [0106], and [0114]; claims 9-13).

Regarding claim **28**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claims 23 and 27 including that the ENAV buffer manager further refers to link information between the AV data and the ENAV units to control the ENAV buffer so that the corresponding ENAV unit is read into the ENAV buffer (Lamkin et al.: paragraphs [0049], [0050], [0060], [0106], and [0114]; claim 1).

Regarding claim **29**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claims 23, 27, and 28 including that the interactive data includes a markup document and markup resources linked to the markup document, the markup document includes a startup file in which the link information is recorded, and the synchronization

information is recorded in the markup document corresponding to each ENAV page (Lamkin et al.: paragraphs [0049], [0050], [0060], [0106], [0114], and [0128]).

Regarding claim **30**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claims 23, 27, and 28 including that the AV data is DVD-Video data having corresponding presentation time stamps, and the link information and the synchronization information are described by using a corresponding presentation time stamp of the DVD-Video data (Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0060], [0106], and [0114] – time can trigger an event; claims 9-13).

Regarding claim **31**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claims 23, 27, and 28 including that the AV data is DVD-Video data having corresponding logical blocks, and the link information and the synchronization information are described using corresponding logical block information of the DVD-Video data (Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0060] –properties, addresses, [0106], and [0114]; claims 9-13).

Regarding claim **32**, Lamkin et al. discloses an apparatus for recording and/or reproducing audio/video (AV) data in an interactive mode, comprising: an ENAV buffer which buffers interactive data for reproducing the AV data in the interactive mode, where the interactive data is divided into a plurality of ENAV units (Figs. 5 and 6; paragraphs [0049], [0050], [0053], and [0128]; claim 1); an

ENAV buffer manager which controls the ENAV buffer so that, if a start page having a predetermined file name is found, a corresponding one of the ENAV units is read into the ENAV buffer (claims 1 and 9-13); and a reproducing unit that reproduces the AV data in the interactive mode using the interactive data from the ENAV buffer (Figs. 5 and 6). However, Lamkin et al. fails to disclose that each ENAV unit has a size less than a predetermined size.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the page size as taught by Cote et al. in the apparatus disclosed by Lamkin et al. in order to avoid underflow and/or overflow of the buffer.

Regarding claim **33**, Lamkin et al. discloses an apparatus for recording and/or reproducing audio/video (AV) data in an interactive mode, comprising: an ENAV buffer which buffers interactive data for reproducing the AV data in the interactive mode, where the interactive data is divided into a plurality of ENAV units (Figs. 5 and 6; paragraphs [0049], [0050], [0053], and [0128]; claim 1); an ENAV buffer manager which controls the ENAV buffer so that a corresponding one of the ENAV units is read into the ENAV buffer when a directory with a

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predetermined name is detected (claims 1 and 9-13); and a reproducing unit that reproduces the AV data in the interactive mode using the interactive data from the ENAV buffer (Figs. 5 and 6). However, Lamkin et al. fails to disclose that each ENAV unit has a size less than a predetermined size.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the page size as taught by Cote et al. in the apparatus disclosed by Lamkin et al. in order to avoid underflow and/or overflow of the buffer.

Regarding claim **34**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 32 including that the ENAV unit has at least one ENAV page and the start page is one of the ENAV pages (Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], [0053], and [0128]).

Regarding claim **35**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 32 including that the interactive data includes a markup document and markup resources linked to the

markup document (Lamkin et al.: Figs. 5 and 6; paragraphs [0049], [0050], and [0053]).

Regarding claims **36-43**, these are method claims corresponding to the apparatus claims 23 and 25-31. Therefore, claims 36-43 are analyzed and rejected as previously discussed with respect to claims 23 and 25-31.

Regarding claim **70**, Lamkin et al. in view of Cote et al. discloses all the limitations as previously discussed with respect to claim 23 including that the predetermined size of the ENAV units corresponds to a size of each of the ENAV unit buffers, and the combined size of the ENAV unit buffers is less than the entire size of the interactive data (Cote et al.: col. 2, lines 37-44 – a buffer big enough for all of the interactive data would be too large and too expensive for the apparatus, the buffer only needs to be big enough to maintain the constant bit rate).

7. Claims 55-59 and 62-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamkin et al. (U.S. Patent Applicant Publication 2005/0278729) in view of Cote et al. (U.S. Patent 7,170,938) in view of Cho et al. (U.S. Patent Application Publication 20020186485).

Regarding claim **55**, Lamkin et al. discloses a recording and/or reproducing apparatus for reproducing first data in an interactive mode, comprising: a buffer which buffers units of interactive data for reproducing corresponding portions of the first data in the interactive mode (claim 1); a buffer manager which controls the buffer so that a corresponding one of the units is

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read into the buffer (claim 1); and a reproducing unit that reproduces the first data in the interactive mode using the interactive data from the buffer (Figs. 5 and 6). However, Lamkin fails to disclose that the units of interactive data being smaller than a predetermined size as well as that the first data is organized in a first directory, and the interactive data is organized in an interactive directory logically separated from the first directory.

Referring to the Cote et al. reference, Cote et al. discloses that MPEG-2 video produces a variable bit rate stream, which means that a buffer between the transcoder and the decoder is necessary to achieve a constant bit rate transfer. Furthermore, the size of the buffer will determine the frame size variation allowable in order to avoid buffer underflow and/or overflow (col. 2, lines 37-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the buffer size in order to determine the page size as taught by Cote et al. in the apparatus disclosed by Lamkin et al. in order to avoid underflow and/or overflow of the buffer. However, Lamkin et al. in view of Cote et al. still fail to disclose that the first data is organized in a first directory, and the interactive data is organized in an interactive directory logically separated from the first directory.

Referring to the Cho et al. reference, Cho et al. discloses a recording and/or reproducing apparatus for reproducing first data in an interactive mode, wherein the interactive data is organized in an interactive directory logically separated from the first directory (Figs. 1, 6, and 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the interactive data in a directory separate from the first data (AV data) as disclosed by Cho et al. with the apparatus disclosed by Lamkin et al. in view of Cote et al. in order to keep the two directories separate therefore making them easier to search.

Regarding claim **56**, Lamkin et al. in view of Cote et al. in view of Cho et al. discloses all the limitations as previously discussed with respect to claim 55 including that the interactive directory includes folders in which corresponding units of the interactive data are organized, and the recording and/or reproducing apparatus detects a folder having a predetermined name, and buffers a corresponding unit of the interactive data from the detected folder having the predetermined name (Lamkin et al.: claims 1 and 9-13; Cho et al.: Figs. 6 and 7).

Regarding claim **57**, Lamkin et al. in view of Cote et al. in view of Cho et al. discloses all the limitations as previously discussed with respect to claims 55 and 56 including that the recording and/or reproducing apparatus detects a command from a file in the detected folder, and the buffer manager is controlled by the detected command to buffer the corresponding unit from the folder before the corresponding portion of the first data is read (Lamkin et al.: claims 1 and 9-13; Cho et al.: paragraphs [0040] and [0041]).

Regarding claim **58**, Lamkin et al. in view of Cote et al. in view of Cho et al. discloses all the limitations as previously discussed with respect to claim 55 including that the interactive directory includes folders in which the units of the

interactive directory are organized, the recording and/or reproducing apparatus is referred to one of the folders in the interactive directory during reproduction of the first data in the interactive mode, and detects a command from a file in the referenced folder, and the buffer manager is controlled by the detected command to buffer the corresponding unit from the folder before the corresponding portion of the first data is read (Lamkin et al.: claims 1 and 9-13; Cho et al.: Figs. 6 and 7; paragraphs [0040] and [0041]).

Regarding claim **59**, Lamkin et al. in view of Cote et al. in view of Cho et al. discloses all the limitations as previously discussed with respect to claims 55 and 58 including that the file further includes a command to delete one of the units stored in the buffer in which the corresponding unit is to be preloaded (Lamkin et al.: claims 12 and 13).

Regarding claim **62**, Lamkin et al. in view of Cote et al. in view of Cho et al. discloses all the limitations as previously discussed with respect to claim 55 including that the first data and the interactive data read by the recording and/or reproducing apparatus are stored on a storage medium, the first data is stored in a first area of the storage medium, and the interactive data is stored in a second area of the storage medium other than the first area (Lamkin et al.: paragraphs [0128]-[0130]; Cho et al.: Fig. 1)

Regarding claims **63-67**, these are information storage medium claims that correspond to the apparatus claims 55-59. Therefore, claims 63-67 are analyzed and rejected as previously discussed with respect to claims 55-59.

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8. Claims 60, 61, 68, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamkin et al. in view of Cho et al. as applied to claim 55 above, and further in view of Kim et al. (U.S. Patent Application Publication 2003/0081943).

Regarding claim **60**, Lamkin et al in view of Cho et al. discloses all the limitations as previously discussed with respect to claim 55, including that the first directory comprises a VIDEO_TS directory (Lamkin et al.: paragraph [0129]). However, Lamkin et al. in view of Cho fails to disclose that the interactive directory is a DVD_ENAV directory having folders, and each unit of the interactive data is organized in a corresponding folder of the DVD_ENAV directory.

Referring to the Kim et al. reference, Kim et al. discloses an apparatus wherein the first directory comprises a VIDEO_TS directory, the interactive directory is a DVD_ENAV directory having folders, and each unit of the interactive data is organized in a corresponding folder of the DVD_ENAV directory (Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have named the directories VIDEO_TS and DVD_ENAV as disclose by Kim et al. in the apparatus disclosed by Lamkin et al. in view of Cho et al. in order for the to easily distinguish between the two directories.

Regarding claim **61**, Lamkin et al. in view of Cho et al. in view of Kim et al. discloses all the limitations as previously discussed with respect to claims 55 and

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60 including that the DVD_ENAV directory includes a markup document which includes link information which associates the folders with the first data in the VIDEO_TS so as to allow the portion of the reproduced first data to be reproduced with a corresponding unit of the interactive data read from the corresponding folder (Kim et al: Fig. 2; paragraph [0023]).

Regarding claims **68** and **69**, these are information storage medium claims that correspond to the apparatus claims 60 and 61. Therefore, claims 68 and 69 are analyzed and rejected as previously discussed with respect to claims 60 and 61.

Allowable Subject Matter

9. Claims 44-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: Prior art fails to teach or fairly suggest a recording and/or reproducing apparatus for reproducing first data in an interactive mode, comprising: an amount L_r of the AV data read for each corresponding ENAV unit to be read is $L_r > ((2 \times T_j + L_e / V_r) \times V_{ox} V_r) / (V_r - V_o)$, wherein T_j denotes a time required to read the corresponding ENAV unit by a pickup of the apparatus, L_e denotes the size of the corresponding ENAV unit, V_r denotes a speed with which the AV data is read from an

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information storage medium, and V_o denotes a decoding speed with which the read AV data is decoded (claims 44-46).

11. Claims 47-54 are allowed.

12. The following is an examiner's statement of reasons for allowance: Prior art fails to teach or fairly suggest a recording and/or reproducing apparatus for reproducing first data in an interactive mode, comprising: an amount L_r of the AV data read for each corresponding ENAV unit to be read is $L_r > ((2 \times T_j + L_e / V_r) \times V_o \times V_r) / (V_r - V_o)$, wherein T_j denotes a time required to read the corresponding ENAV unit by a pickup of the apparatus, L_e denotes the size of the corresponding ENAV unit, V_r denotes a speed with which the AV data is read from an information storage medium, and V_o denotes a decoding speed with which the read AV data is decoded (Independent claim 47).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEATHER R. JONES whose telephone number is (571)272-7368. The examiner can normally be reached on Mon. - Thurs.: 7:00 am - 4:30 pm, and every other Fri.: 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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February 26, 2009

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